



January 26, 2006

Eileen Wenger Tutt
Special Advisor to the Secretary
California Environmental Protection Agency
1001 I Street, P.O. Box 2815
Sacramento, CA 95812-2815

Dear Ms. Tutt:

I am writing to provide comments on the Cal/EPA Climate Action Team Report to the Governor and Legislature dated December 8, 2005. I received your voicemail message and am taking your advice to submit my comments in writing.

As I mentioned in my voicemail to you, I would like to point out several areas that result in emissions of global warming gases that were not considered in the report. I am Director of the Institute for Research and Technical Assistance (IRTA), a nonprofit organization that was established to assist companies and whole industries in converting away from ozone depleting substances, VOCs and toxics. The primary focus is on solvent applications. I worked for more than 25 years on alternatives to ozone depleting substances. As you are aware, ozone depleting substances are most often also global warming gases and many of the alternatives to ozone depleting substances are also global warming gases.

Because my current research and field work generally involves solvent applications, I have followed the ozone depleting substance substitutions in other areas over the last few years in only a cursory manner. Even so, when I read the report prepared by Cal/EPA, I thought it was important to bring your attention to areas that were not highlighted. The applications primarily involve chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs). As you know, because the CFCs, HCFCs and HFCs have relatively long atmospheric lifetimes and contain halogens, they have a reasonably high global warming potential.

The section on HFC reduction strategies in the report discusses only limited applications including small cans of HFC-134a for replenishing automotive air conditioners, requiring low-GWP refrigerants in mobile air conditioning, limiting the global warming potential of refrigerants used in retail food stores and refrigerated transport vehicles, leak tightening mobile air conditioning systems and enforcing the ban on releasing HFCs. There are many other areas where HCFCs or HFCs are currently used extensively in air conditioning and refrigeration uses. One major area is chillers used in large commercial buildings where HCFC-123 and HFCs are being used. Another major area is industrial process refrigeration. Other areas include cold storage warehouses, home air conditioning, home refrigerators and freezers, ice skating rinks, vending machines and water coolers.

The category of foam was not considered in the report. Rigid foam applications include laminated boardstock, polyurethane slabstock, extruded boardstock, insulation board and polyurethane extruded sheet, polyolefin and appliance polyurethane. Virtually all of these types of foam use HCFCs or HFCs. In flexible polyurethane foam applications, the six manufacturers in California have all converted to not-in-kind alternatives so no global warming gas emissions would result from flexible slabstock foam manufacture.

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There are global warming gas emissions from rigid foam applications and there may be opportunities for finding alternatives or, possibly, collecting the emissions. CFC-11 was used for many years in rigid insulating foam used in construction of buildings. The CFC-11 is retained in the cells of the foam and acts as the insulating medium. Small emissions occur during manufacture and there are some emissions as the CFC-11 outgases over time. The bulk of the emissions occur, however, when the building is destroyed and the cells of the foam are crushed. More recently, the industry has been using HCFC-141b in insulating foam. Production of HCFC-141b was banned a few years ago because the chemical contributes to ozone depletion. The industry may end up using HFCs.

The other sector that was not considered in the report is fire extinguishing agents. Halons, which are strong ozone depleting substances containing bromine, were used for many years in total flooding systems used for computer rooms and other high value areas and in hand held fire extinguishers. Many of the alternatives are either HCFCs or HFCs. Again, there may be an opportunity to find not-in-kind alternatives or use collection systems to prevent emissions.

In solvent applications, some companies converted from CFC-113 and 1,1,1-trichloroethane to in-kind alternatives including HCFCs, HFCs and hydrofluoroethers (HFEs). There are certainly alternatives in these applications. In dry cleaning, one process that is an alternative to perchloroethylene uses small quantities of perfluorocarbons (PFCs) and HFCs.

There are numerous other small applications of CFCs that may be using HCFCs or HFCs that could be investigated. These include liquid food freezing for shrimp and strawberries, boat horns and whipped topping stabilizer.

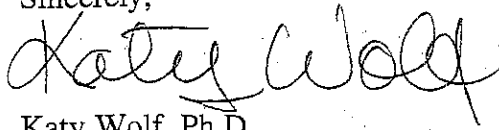
Executive Order S-3-05 calls for very significant reductions in global warming gases. The state will have to consider all applications where global warming gases are emitted to meet these goals. In some cases, it may not be worth it to pursue emission reductions because the emissions are too small to justify it or reducing emissions would be too costly. Even so, I believe it is important to be aware of all the applications and perform at least limited analysis of them to determine the level of emissions, the methods of reducing emissions and the comparative potential for reducing them.

As an example, consider the foam in the walls of home, retail and commercial refrigeration systems. Many of these systems contain CFC-11, HCFC-141b and HFCs. If the refrigerant charge is collected before the units are destroyed, the global warming gases in the foam might also be collected. In Germany, there is at least one facility that is collecting the CFC-11 from the foam in home refrigerators. As another example, consider the foam in the walls of buildings. When the buildings are destroyed, the CFC-11 or HCFC-141b could be collected before the walls are crushed. These types of measures are obviously not cost effective currently but, under a cap and trade or other program, it might eventually become cost effective to consider it. The state should do a thorough analysis of the global warming gas sources so that as greater emission reductions are required, additional measures could be implemented.

I hope these suggestions are of some use to you. Obviously I have not had the time or resources to examine all of the options in detail before writing to you. The suggestions are simply "off the top of my head." Please take that into account and, if you would like to discuss the issues further, please call me at (818) 244-0300.

I appreciate the opportunity to comment on this important work.

Sincerely,

A handwritten signature in black ink, appearing to read "Katy Wolf". The signature is fluid and cursive, with the first name "Katy" and last name "Wolf" clearly distinguishable.

Katy Wolf, Ph.D.
Executive Director